REMARKS

By this Amendment the specification has been amended to correct its presentation and more fully describe the invention (note concurrently filed Submission of Replacement Drawing sheets), claim 1 has been amended to better define the inventive microphone, and claim 5 has been revised into independent form, claim 6 has been revised, and claims 2-4 and 6-11 have been amended to better conform with U.S. practice. Entry is requested.

In the outstanding Office Action the examiner has rejected claims 1 and 6 under 35 U.S.C. 102(b) as being anticipated by Ewens et al., he has rejected claims 2-4 and 7-11 under 35 U.S.C. 103(a) as being unpatentable over Ewens et al. in view of Didyk et al. (Sobel et al.), and he has rejected claims 5 under 35 U.S.C. 103(a) as being unpatentable over Ewens et al.

The applicants assert that the examiner's rejections are incorrect.

In Sobel et al. a microphone is described which includes a Thuras vent or tube 68. This vent connects the back chamber with the surroundings. The microphone in Sobel et al. comprises a movable membrane 28 which isolates a part of the casing from the surroundings, such that sound waves reaching the membrane will make it move, and these movements are detected. The Thuras vent 68 short-circuits the isolated part, usually termed the "back chamber" of the casing and provides a controlled fluid canal between the surrounding and this back

chamber. As explained in the description, the vent may be dimensioned in length and diameter to provide a preferred frequency response of the movements of the membrane when exposed to sound. In this case and in other cases of use of Thuras vents, the desired improvements of the frequency response is in the audio range. A similar arrangement is provided in Ewens et al. The examiner asserts that the Thuras tube known from Ewens et al. corresponds to damping ultrasonic frequencies. Apparently, this should be clear from page 4, lines 19-22. What is stated here is: "-the channel 22 is effectively in the form of a tube and constitutes a Thuras tube providing bass resonance or reinforcement from the rear portion 28 of the chamber 12." This passage does not seem to relate in any way to the damping of ultrasound frequencies. Also, there is no teaching in this passage which could guide a person of ordinary skill towards a method or device which could dampen the detrimental effect of ultrasound fed into a microphone for picking up audio-frequency sound.

The microphone inlet structure comprising a tube or cavity which is suggested according to the present invention does not short-circuit the surroundings with the back chamber. A vent in the micro-phone providing such a short circuit is surely already provided for, inside the microphone housing and is not as such a concern for this invention. Such a vent or tube inside of the microphone housing which is commonplace in microphones will work the usual way to ensure that the back chamber and membrane is not affected by changing atmospheric pressure and to

ensure a more linear frequency response in the audio range of the movements of the membrane when exposed to sounds in this frequency range.

What is disclosed is a resonator cavity, which is not connected acoustically to any other part of the microphone than the inlet channel. The resonator cavity of the invention is provided outside of the microphone casing as can be seen in Fig. 6, 7 and 8 and forms part of the inlet structure being added to the exterior of the microphone casing. There is no indication in either Sobel et al. or Ewens et al. which could lead a person of ordinary skill towards a microphone whereby the inlet structure comprises a first tube part and a cavity in connection with the first tube part out-side of the housing, whereby this cavity is dimensioned to dampen ultrasonic frequencies. And further, there appears not to be any directions in the prior art documents as to how the effect of such a cavity may be widened to cover a broader frequency range by having a length dimension L of the tube to vary slightly with the cross section of the second tube part. Even if the tube provided for in Ewens et al. should display a variation of the length dimension with the cross section, the effects thereof are not realized, as in the audio frequencies, the effects of such a variation are negligible. Therefore, there are no directions to the skilled person in Ewens et al. which could lead a person of ordinary skill towards a microphone with an inlet as claimed which could dampen the detrimental effects of ultrasound.

Claim 2 is aimed at the relationship between the size of the cavity and the wavelength of the ultra sound frequency to be dampened. There is no indication in any of the prior art that the provision of a cavity as claimed in claim 1 with the dimensions specified in claim 2 could be used to avoid the problems of ultrasound in microphone for capturing sounds in the audio range. The provisions of claim 2 are thus new and inventive. The examiner rejects claim 2 based on the combined teachings of Ewens et al. and Sobel et al. But the remarks in Sobel et al. concerning the dimensioning of the tube are directed to the construction presented in this document, whereby the tube connects the back chamber with the surroundings. These remarks cannot lead a person of ordinary skill to the cavity according to the invention provided outside of the microphone casing and dimensioned specifically to suppress ultrasound frequencies.

With reference to claim 3 there are no references in the prior art rendering it obvious that the specified curved tube part could be of any use in connection with making a microphone insensitive to the effects of ultrasound over a broader frequency range. Thus, the elements of claim 3 are new and inventive over the prior art.

In claim 4 it is specified that the cavity is arranged in close proximity of the microphone. With the further provision of claim 1, that the cavity is outside of the microphone housing, novelty of this claim is provided over Ewens et al. where the tube 22 by virtue of the direct connection to the tube 23 has access to the inside of the housing, and

especially to the back side of membrane 16. Arranging a cavity of the kind provided for in claim 1, in close proximity of the microphone, is not hinted at in any of the prior art documents, and as explained, this allows the cavity to be provided as an open cut out in the face of a block comprising the inlet, such that the cavity is generated in a very simple manner by assembling this face of the block with the micro-phone casing.

The arguments above regarding claims 2, 3 and 4 also apply to claims 7, 8 and 9 and the examiner's rejection of these claims under point 14-16 of the Office Action.

Claim 10 recites the feature that the second tube part is curved and is arranged in a plane essentially perpendicular to the first tube part. According to point 17 of the Office Action this is taught by Ewens et al. As explained previously, there is nothing in the Ewens et al. which could inspire a person of ordinary skill to provide a closed tube which is dimensioned to dampen ultrasonic frequencies and arranged as specified in claim 10.

Claim 11 recites the feature that the cavity or second tube part is arranged in close proximity of the microphone. According to examiner, this is known from Ewens et al. However, Ewens et al. do not teach a closed tube outside the microphone housing and being dimensioned to dampen ultrasonic frequencies as cited in claim 6 to which claim 11 refers. Also, Ewens et al. do not have any disclosure which could lead a

person or ordinary skill towards an inlet structure as claimed in claim 6 with the special feature cited in claim 11.

Even if a person of ordinary skill could learn from Ewens et al. and Sobel et al. that a tube arranged between the inlet to the microphone and the back chamber thereof could improve the response of the microphone in the audio frequency range, there are no teachings in these patents which could provide a person of ordinary skill with information on how to solve the problem of noise caused by ultrasound entering the microphones, and especially there is no teaching in Ewens et al. as to the arrangement of a resonator cavity in close proximity of the microphone. As explained, this allows the resonator cavity to be formed when the inlet piece is cemented onto the microphone housing, and in this way an ordinary microphone which could be used in any other instrument wherein provisions for damping of ultrasound is not required, can easily be transformed such as to also comprise the ultrasound damping feature.

Thus claims 10 and 11 comprise inventions which cannot be arrived at by any simple combination of prior art. If a person of ordinary skill were to try and modify the teachings of Ewens et al. or Sobel et al. in order to cope with ultrasound, this would lead to a vent tube between the front of the microphone and the back space, however no such vent would amount to an inlet structure for a microphone wherein a cavity outside of a microphone housing as claimed is provided.

The examiner's rejection should be withdrawn and the application allowed.

Respectfully submitted,

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